force onto the particular region **113** to provide input. Tactile feedback may be in the form of Newton's third law, where an applied force has an equal and opposite reaction force, but may alternatively be any other suitable type of tactile feedback. Alternatively, the displacement device **130** may retract a portion of the first level fluid vessel **127** and/or the second level fluid vessel **227** to deform the particular region **113** inward. However, any other suitable deformation of the particular region **113** may be used.

[0016] In the preferred embodiments, the first and second fluid vessels **127** and **227** are preferably substantially identical aside from the arrangement of the fluid vessel within the sheet **102** and are preferably of the type of fluid vessel as described in U.S. applications Nos. 11/969,848 and 12/319,334. The first and second fluid vessels **127** and **227** each preferably include at least one first level cavity **125** and second level cavity **225**, respectively, and the displacement device **130** preferably influences the volumes of fluid **112** and **212** within the cavities **125** and **225** to expand and retract the each of the cavities **125** and **225** independently of each other. As shown in FIG. **4**, the user interface system **100** may further include a valve **139** that functions to direct fluid within the user interface system **100** and preferably cooperates with the displacement device **130** to manipulate the fluid within the first and second fluid vessels **127** and **227**. In this variation, the first and second volumes of fluid **112** and **212** may intermix. Alternatively, as shown in FIG. **6**, the displacement device **130** may include a first displacement device **130***a* that functions to manipulate the first volume of fluid **112** and a second displacement device **130***b* that functions to manipulate the second volume of fluid **212**. However, any other suitable arrangement of the displacement device **130** to manipulate the first and second volumes of fluid **112** and **212** substantially independently of each other may be used.

[0017] The fluid vessels **127** and **227** may alternatively each include a first level channel **138** and second level channel **238**, respectively, or a combination of a channel **138** and a cavity **125** and channel **238** and cavity **225**. Each of the fluid vessels **127** and **227** may also include a second cavity **125***b* and **225***b* in addition to a first cavity **125***a* and **225***a*. The second cavities **125***b* and **225***b* are preferably similar or identical to the cavities **125***a* and **225***a*, but may alternatively be any other suitable kind of cavity. When the second cavity **125***b* and/or **225***b* are expanded, a second particular region **113** on the surface **115** is preferably deformed. The displacement device **130** preferably also influences the first volume of fluid **112** within the second cavity **125***b* independently of the first cavity **125***a* and the second volume of fluid **212** within the second cavity **225***b* independently of the first cavity **225***a*. However, any other suitable arrangement of the first and second fluid vessels **127** and **227** and the displacement device **130** may be used.

[0018] The first and second volumes of fluid **112** and **212** of the preferred embodiments are preferably substantially similar, for example, a fluid that is index matched with the sheet to allow an image to pass through the sheet without substantial visual obstruction, as described in U.S. applications Nos. 11/969,848 and 12/319,334. Alternatively, the first and second volumes of fluid **112** and **212** may be substantially different. For example, one of the first and second volumes of fluid may be index matched to the sheet **102** while the other of the first and second volumes of fluid may be another type of fluid that may not be index matched but that does not substantially change light that passes through. For example, in the variation as shown in FIG. **7***d*, the first volume of fluid **112** may be air while the second volume of fluid **212** may be a fluid that is index matched to the sheet **102**. In this variation, the thickness of the first volume of fluid **112** is preferably small such that the affect on the passage of light through the air is substantially low and optical distortion is substantially zero. However, any other suitable type of fluid may be used for the first and second volumes of fluid **112** and **212**.

[0019] The sheet **102** of the user interface system **100** of the first and second preferred embodiments may be any one of the following variations or any other suitable combination of the following variations. In a first variation, as shown in FIGS. **2-4**, the sheet **102** may include a substrate **120** that at least partially defines both the first and second fluid vessels **127** and **227** and a layer **110** arranged above the substrate that defines the surface. The layer **110** may also function to cooperate with the substrate to define at least one of the fluid vessels **127** and **227**. In a second variation, as shown in FIG. **5**, the sheet **102** may include a first substrate **120** that at least partially define the first level cavity **125** and a second substrate **220** that at least partially define the second level cavity **225**. In a third variation, as shown in FIG. **6**, sheet **102** may also include a second layer **210** located in between the first and second level fluid vessels **127** and **227** (and in between the first and second substrates **120** and **220** in the second variation). The user interface system **100** of this variation may also include a second displacement device **130***b* that is coupled to the second level fluid vessel **227** through a second channel **238**. The second layer **210** may function to support the first substrate **120** and/or to partially define the second level cavity **225**. The multiple substrates and/or layers in the second and third variations may be particularly useful in composing a sheet that includes a plurality of different materials, for example, materials with different degrees of pliability to allow for a first and second particular region to be deformed and/or to allow deformation of a particular region to a first and second stage.

[0020] In a fourth variation, as shown in FIGS. **7***a*-**7***c*, sheet **102** includes a first layer **110** and a second layer **210** that cooperatively define a first level fluid vessel **127**. In this variation, the boundaries of the cavity **125** of the first level fluid vessel **127** are defined by where the first and second layers **110** and **210** are attached (in other words, at an attachment point **117** as described below) to each other and the cavity **125** is a location where the first and second layers **110** and **210** are not attached to each other. The location of the attachment point **117** between the first and second layers **110** and **210** may be substantially adjacent to the first and second cavities **225***a* and **225***b*, as shown in FIG. **7***b* and **7***c*, allowing the first layer no to follow the shape of the second layer **210** substantially closely. Alternatively, as shown in FIG. **7***d*, the location of the attachment point **117** may be substantially removed from the first and second cavities **225***a* and **225***b*, allowing the first layer **110** to follow the shape of the second layer **210** substantially loosely. However, any other suitable location of the attachment point **117** may be used. A first channel **138** allows fluid to flow into the space in between the first and second layers **110** and **210** at an unattached location, expanding the cavity **125**. The sheet **102** of the fourth variation may also include a second substrate **220** that at least partially defines a second level fluid vessel **227**. As shown in FIGS. **7***a*-**7***c*, the substrate **120** of this variation may also function to define a portion of the first fluid vessel **127**, such as a first channel **138**. Alternatively, as shown in FIG. **7***d*, the